

REMARKS

This Amendment is filed in response to the Office Action dated August 23, 2006, which has a shortened statutory period set to expire November 23, 2006.

Meyer And Beavin Fail To Disclose Or Suggest Applicant's Invention

Claim 1, as amended, recites:

performing a full image backup in disk order on a plurality of data blocks stored by the at least one primary data source;
initiating an incremental backup at a predetermined interval, the incremental backup including file system metadata; and
comparing a modification time of each file/folder at the predetermined interval to a defined time, the file system metadata including each modification time, wherein if the modification time is earlier than the defined time, then excluding data blocks of that file/folder from the incremental backup.

Myers fails to teach multiple limitations of Claim 1. For example, Myers fails to teach a full image backup. Instead, Myers teaches a modified INCREMENTAL backup policy. Page 7, lines 37-39. Myers explicitly distinguishes his modified INCREMENTAL backup policy from either a FULL VOLUME backup or a COMBINATION backup where FULL VOLUME backup is periodically invoked and INCREMENTAL backup invoked therebetween. Page 8, lines 45-48 ("said INCREMENTAL policy being in contradistinction to either FULL VOLUME backup where all data whether or not changed since the last backup will in turn be elsewhere copied, or COMBINATION backup where FULL VOLUME backup is periodically invoked and INCREMENTAL backup invoked therebetween.") Myers further teaches that a COMBINATION (also called MIXED) backup policy "still results in a spreadout of the backup volumes and

more time than an INCREMENTAL policy alone would take." Page 3, lines 29-30. As a result, an explicit objective of Myers is to devise a backup method "in which less data and a smaller backup interval are involved other than that used with prior art FULL, INCREMENTAL, or MIXED backup policies." Page 3, lines 31-33. Thus, Applicant submits that Myers not only distinguishes his modified INCREMENTAL backup method from FULL and COMBINATION backup methods, Myers also explicitly teaches away from FULL and COMBINATION backup methods. Therefore, Applicant respectfully submits that Myers fails to disclose or suggest performing a full backup, much less a full image backup, as recited in Claim 1.

Myers also fails to disclose or suggest an incremental backup that includes file system metadata, which in turn includes the modification time of each file/folder. In contrast, Myers teaches arranging data sets in logically independent groups, each group being assigned a first time interval, wherein a digital computer amends each data set with a date time stamp denoting the dates of the last backup and the last update. Page 3, lines 34-38.

This type of incremental backup is discussed by Applicant as prior art. Specifically, as described in paragraph [0005],

In systems that want to provide image incremental backups, the additional software to track changes must be enabled. This software, at a minimum, must track which portion of the file system or storage has been re-written. This usually involves updating a map or a list tracking which blocks have been re-written. Thus, all write operations now require at least two writes: one write to update the change list or map and another write to write the data. Therefore, this method adds 100% overhead for writes on systems wanting to enable image incremental backups.

Note that a map update involves a map-to-map comparison, thereby adding considerable complexity and time to the update process. Myers shows such a map on page 6, lines 45-56. Applicant's technique advantageously eliminates the additional complexity and overhead of tracking backup dates for each data set, as taught by Meyers.

Specifically, because each file's/folder's modification time is already part of the file system metadata, this backup method has no associated overhead during normal operation. Moreover, as described by Applicant in paragraph [0023], including file system metadata in the backup significantly increases the accuracy of the backup compared to a standard file-by-file backup, which only identifies new/changed files.

Beavin fails to remedy the numerous deficiencies of Myers with respect to Claim 1. Specifically, Beavin teaches associating each data record of a primary data structure with one of multiple pages. Col. 2, lines 31-33. Concurrently, with the storage of each page being written to the primary data structure, each page is also copied to an image copy data set. Col. 2, lines 35-37. Beavin further teaches providing a timestamp for each page when it is written to the primary data structure as well as the image copy data set. Col. 2, lines 42-46.

Applicant respectfully submits that the pages of the image copy data set has nothing to do with the recited full image backup recited in Claim 1. Specifically, in an image backup, the data image is read sequentially from the primary data source and written to the secondary data source. See, for example, the Specification, paragraph [0004]. Therefore, Beavin fails to teach anything about a full image backup.

Beavin also fails to disclose or suggest an incremental backup that includes file system metadata, which in turn

includes the modification time of each file/folder. In fact, Beavin teach nothing about metadata and therefore cannot teach anything about the recited modification time.

Because the cited references fail to disclose or suggest multiple limitations recited in Claim 1, Applicant requests reconsideration and withdrawal of the rejection of Claim 1.

Claims 2-12 depend from Claim 1 and therefore are patentable for at least the reasons presented for Claim 1. Based on those reasons, Applicant requests reconsideration and withdrawal of the rejection of Claims 2-12.

Applicant notes that Claims 5 and 6 recite limitations regarding changing a system clock. The Second Office Action cites Myers at page 5, line 47 to page 6, line 6 as disclosing these limitations. Applicant traverses this characterization. Specifically, Myers teaches only the times/dates of the last change and last backup for the data objects in this passage. These times/dates have nothing to do with changing a system clock, as recited in Claims 5 and 6. Therefore, Applicant requests further reconsideration and withdrawal of the rejection of Claims 5 and 6.

Claim 13, as amended, recites:

performing a full image backup in disk order on a plurality of data blocks stored by the at least one primary data source;

initiating an incremental backup at a predetermined interval, the incremental backup including file system metadata; and

comparing a modification time of each file/folder at the predetermined interval to a defined time, the file system metadata including each modification time, wherein if the modification time is later than the defined time, then including data blocks of that file/folder in the incremental backup.

Therefore, Claim 13 is patentable for substantially the same reasons presented for Claim 1. Based on those reasons,

Applicant requests reconsideration and withdrawal of the rejection of Claim 13.

Claims 14-24 depend from Claim 13 and therefore are patentable for at least the reasons presented for Claim 13. Based on those reasons, Applicant requests reconsideration and withdrawal of the rejection of Claims 14-24.

CONCLUSION

Claims 1-24 are pending in the present application.
Applicant respectfully requests allowance of these claims.

If there are any questions, please telephone the
undersigned at 408-451-5907 to expedite prosecution of this
case.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Jeanette S. Harms', is written over a horizontal line.

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